

CLAIMS

What is claimed is:

1. A medical device pump comprising a compressor and a negative pressure reservoir connected to said compressor, said negative pressure reservoir containing a muffling means.
2. The medical device pump as claimed in claim 1 further comprising a positive pressure reservoir connected to the compressor.
3. The medical device pump as claimed in claim 1 further comprising a positive pressure reservoir connected to the compressor and an isolator enclosure connected to both the positive pressure reservoir and the negative pressure reservoir, said isolator enclosure comprising an enclosed volume divided by a pliant membrane into a primary side and a secondary side.
4. The medical device pump as claimed in claim 1 further comprising a positive pressure reservoir connected to the compressor and an isolator enclosure connected to both the positive pressure reservoir and the negative pressure reservoir, said isolator enclosure comprising an enclosed volume divided by a pliant membrane into a primary side and a secondary side, said secondary side being in communication with a balloon catheter, said balloon catheter comprising a tube terminating in a balloon, shifting of the pliant membrane from side to side causes the balloon to inflate and deflate.
5. The medical device pump as claimed in claim 1 further comprising a positive pressure reservoir connected to the compressor and an isolator enclosure connected to both the positive pressure reservoir and the negative pressure reservoir, said isolator enclosure comprising an enclosed volume divided by a pliant membrane into a primary side and a secondary side, a first valve is connected between positive pressure reservoir and the primary side of the isolator, a second valve is connected between the negative pressure reservoir and the primary side of the isolator, said secondary side being in communication with a balloon catheter, said balloon catheter comprising a tube

terminating in a balloon, shifting of the pliant membrane from side to side causes the balloon to inflate and deflate.

6. The medical device as claimed in claim 5 wherein the compressor maintains a predetermined vacuum level in the negative pressure reservoir and upon opening the second valve gas rushes from the primary side of the isolator into the negative pressure reservoir, the muffling means comprises one or more walls extending in-line with the initial direction of the flow into the negative pressure reservoir.

7. The medical device as claimed in claim 1 or 2 or 3 or 4 or 5 wherein decreased pressure in negative pressure reservoir created by the compressor results in a rush of gas flow into said negative pressure reservoir and wherein the muffling means comprises one or more walls extending in-line with the initial direction of the gas flow into the negative pressure reservoir.

8. The medical device as claimed in claim 1 or 2 or 3 or 4 or 5 wherein decreased pressure in negative pressure reservoir created by compressor results in a rush of gas flow into said negative pressure reservoir and wherein the muffling means comprises one or more walls extending in-line with the initial direction of the gas flow into the negative pressure reservoir, a transverse cross section of said one or more walls comprises one or more enclosed shapes.

9. The medical device as claimed in claim 1 or 2 or 3 or 4 or 5 wherein decreased pressure in negative pressure reservoir created by compressor results in a rush of gas flow into said negative pressure reservoir and wherein the muffling means comprises one or more walls extending in-line with the initial direction of the gas flow into the negative pressure reservoir, a transverse cross section of said one or more walls comprises one or more circles.

10. The medical device as claimed in claim 1 or 2 or 3 or 4 or 5 wherein the muffling means comprises a honeycomb structure.

11. The medical device as claimed in claim 1 or 2 or 3 or 4 or 5 wherein the muffling means comprises one or more tubes.

12. The medical device as claimed in claim 1 or 2 or 3 or 4 or 5 wherein the muffling means comprises one or more tubes disposed within one another.

13. A medical device pump comprising a compressor, a negative pressure reservoir and a positive pressure reservoir both connected to said compressor, a muffling means contained within the negative pressure reservoir, an isolator enclosure connected to both the positive pressure reservoir and the negative pressure reservoir, a first valve , and a second valve, said isolator enclosure comprising an enclosed volume divided by a pliant membrane into a primary side and a secondary side, said first valve being connected between the positive pressure reservoir and the primary side of the isolator enclosure, a second valve is connected between the negative pressure reservoir and the primary side of the isolator enclosure, said secondary side being in communication with a balloon catheter, said balloon catheter comprising a tube terminating in a balloon, shifting of the pliant membrane from side to side causes the balloon to inflate and deflate, said compressor maintains a predetermined vacuum level in the negative pressure reservoir and upon opening the second valve gas rushes from the primary side of the isolator into the negative pressure reservoir, the muffling means comprises one or more walls extending in-line with the initial direction of the gas flow into the negative pressure reservoir.

14. The medical device pump as claimed in claim 13 wherein the muffling means comprises a honeycomb structure disposed within the negative pressure reservoir.

15. A pressure reservoir comprising an enclosure having an outlet and an inlet for connection to a low pressure source, said enclosure containing a muffling means.

16. The pressure reservoir as claimed in claim 15 wherein the muffling means comprises one or more walls extending in-line with the initial direction of gas flow into the negative pressure reservoir through the inlet port.

17. The pressure reservoir as claimed in claim 15 wherein the muffling means comprises one or more walls extending in-line with the initial direction of gas flow into the negative pressure reservoir through the inlet port, a transverse cross section of the one or more walls comprises one or more enclosed shapes.

18. The pressure reservoir as claimed in claim 15 wherein the muffling means comprises one or more walls extending in-line with the initial direction of gas flow into the negative pressure reservoir through the inlet port, a transverse cross section of the one or more walls comprises one or more circles.

19. The pressure reservoir as claimed in claim 15 wherein the muffling means comprises one or more tubes.

20. The pressure reservoir as claimed in claim 15 wherein the muffling means comprises one or more tubes disposed within one another.

21. A method for reducing the noise associated with allowing gas to flow through a port into a negatively pressured reservoir, said reservoir comprising an enclosure having an outlet port and an input port for connection to a low pressure source, said enclosure containing a muffling means, said method comprising the step passing any inlet gas through at least a portion of said muffling means.

22. The method as claimed in claim 21 wherein said muffling means comprises one or more walls extending in-line with the initial direction of gas flow into the reservoir through the inlet port.

23. The method as claimed in claim 21 wherein said muffling means comprises a honeycomb structure.